Editorial

Genetics, epigenetics, and pregenetics

In the blame game of genetic disorders, genes are credited with the disrupting lives of millions of people around the world. The disruption of any system in the body is blamed as a bad gene effect. Genetics ruling lives of living systems is a Darwinian hangover. The idea that genes control biology is a hypothesis that has never been proved! This is because of the confusion between *causation* and *correlation*. There are many diseases that are correlated to gene dysfunction; but the actual aspect of the defective gene being causative of the disease has never been proven,[1] [see also 2 p. 108]. The metaphor of control by the gene has been assumed without argument; the gene reacts to the signals from the environment for both proper activity and abnormal response. It seems that the environment has a crucial role to play in the health of a cell and ultimately, the health of an individual.

Epigenetics literally means above genetics, meaning, that which controls the organism beyond genetics. By the end of the last century, it was known that DNA by itself does not determine all characteristics of an organism, including humans. The environment, stress one perceives, and nutrition, to name a few, play a vital part in determining the response of an organism, as much as the DNA itself. Thus, it is known now that both nature (genetic makeup) and nurture (environmental factors) play equally important roles in the responses observed, both at the cellular and organism levels. Thus, humans are affected by both genetic and epigenetic factors.

In many studies, the epigenetic factors are found to influence the outcome of some of the common diseases. For example, mice that are predisposed to cardiac and diabetic disorders are found to give offsprings that are normal if the food given to them is proper.[2] In other words, *epigenetic factors could override genetic factors!* This proves that genetic factors are not the final repository of all information in the health status of an organism. We now call many disorders as lifestyle problems. Abnormal lifestyle has given rise to a host of problems and if we can change the anomalous lifestyle (through proper diet, exercise, and yoga), it is also possible to reverse the problems. It has been stated that 95% of the diseases (including cancer and cardiovascular ones) are not inherited (i.e., gene driven). Thus, the importance of nurture cannot be overstated.

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The membrane of every cell plays a vital role in deciding the type of input that goes into the cell. There are two types of proteins in the cell membrane, the sensor and the effector proteins. As the name implies, the sensor, similar to our sensory organs, responds to many extracellular signals that may be biochemical, vibratory or electromagnetic. Hence the cellular response — and hence, the entire body response — may be based on non-physical inputs such as mechanical movements (read yoga practices), and even thought and deliberation. Thus, in contrast to conventional wisdom, genes do not control their own activity. The proteins at the membrane control the way the gene reads the signals. Thus, like the brain in a human, the control for many environmental inputs are through the membrane, and the environment plays a significant part in the behavior of a cell, and hence, the entire organism.[2,3]

The message of epigenetic medicine is clear; the factors that control the life cycle of an organism are both nature and nurture. Although this thinking is new in medicine, it is not so in many philosophical systems of the world. Ayurveda and yoga literatures are based on the postulate that a healthy body requires a healthy mind. Moreso, if one is interested in the mystical aspects, one needs to transcend the mind and its many activities. Furthermore, the great Yoga teachers of present times have claimed that even genetic disorders can be managed through the practice of Yoga. We tended to take such challenges with a gram of salt. Now studies are emerging that indeed such intuitive claims can be substantiated in the laboratory.[4,5] Thus, good mind–body practices and good environmental hygiene are of utmost importance in the management of many disorders. Environmental hygiene includes diet, mental attitude, and pleasant speech, all of which have been emphasized in the Yoga Sutras of Sage Patanjali.

One might ask if this is the entire story. As per ancient Indian traditions, this is still not the complete picture. Here a leap of faith is required to understand the 'complete' picture. This is related to the effect of gunas (or the psychophysical characteristics) that are carried from birth to birth by each one of us. *Pregenetics* is the inclusion of past experiences — such as from our past lives — in the form of gunas (psychophysical traits) that overlie the genetic and epigenetic influences. We see in the same

family that brothers and sisters are unique individuals with different perspectives and ways of life. Although they genetically and even epigenetically share the same or similar environment, we still find them different and unique. There is no explanation for this anomaly in the scenario of epigenetics. Unless we bring in another factor that is more fundamental to both genetic and epigenetic factors, we cannot explain these variances. Thus, it is proposed that *pregenetic factors* are fundamental to the behavior and action in each of us.

There are emerging research studies that seem to support the view that pregenetic factors are expressed in unique ways in the present life of individuals. Two areas are of particular interest: past life regression and past life recall. Past life regression has its own problem in interpretation, even if the details may be interesting and seem to appear through channels of communication that are beyond normal. However, past life recall is providing some startling information regarding pregenetic aspects in children. In a recent research in this area, children are able to recollect their previous life experiences. The narrations of these children corroborate with the events that had taken place in an earlier life. The details in the recall are fairly accurate with perhaps ten percent uncertainty in the narrations.[6] Furthermore, in the recent past, especially in the English speaking countries, this research has led to more accurate (since there are no translators involved) and direct collection of data.[7] These studies have revealed that 'many aspects of the child's present personality have carried forward *intact* from the past life: behavior, emotions, phobias, talents, knowledge, the quality of relationships, and even physical symptoms'.[7] The author suggests that if the personality carries forward from one life to the next, then there is a need for developing a theory of personality that spans over many life times. In some cases, children carry the physical wounds from their previous birth and go through trauma of the earlier life, especially if the life had ended in a violent manner. Such trauma may well disrupt the current life, and hence, the author has worked with children to release these traumas and readjust their psychological responses toward what we consider normal.

All these go to show that personality is not the product of nature and nurture alone, as seen in a particular life. It has added dimensions of many, many previous lives. Thus, there is a need to introduce the concept of *pregenetics*, known as *vāsana* in Sanskrit, the sum total of personality traits that a person 'inherits' from all his / her actions over many life times. There seem to be some attempts to catalog and categorize personalities on the basis of the three gunas (traits) of *satva*, *rajas*, and *tamas*. Perhaps bridging these ancient definitions to modern measurable psychophysiologic variables could give us an understanding and appreciation of the personality types, their interactions, and their propensities to health and ill-health.

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